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United States Department of Agriculture
Soil Conservation Service
Montana Agricultural Experiment Station
Bozeman, Montana

MONTANA WATER SUPPLY OUTLOOK

Snowpack and Streamflow Forecasts as of June 1, 1985

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The Montana Water Supply Outlook is a publication of the U. S. Soil Conservation Service. The SCS administers the Cooperative Snow Survey Program in cooperation with other federal, state and private agencies, organizations, and individuals.

The report is prepared by SCS, Snow Survey and Water Supply Forecast Staff, Room 443, Federal Building, 10 East Babcock, Bozeman, Montana.

Water supplies dependent on spring precipitation

Snowfall during the last half of May was almost nonexistent. A few inches accumulated at higher elevations over Memorial Day weekend. Melt rates were well above average and precipitation was well below average up until the Memorial Day weekend storm.

Currently, most locations show no snow. A few heavier snowpack areas report much below average water equivalents for this time of year.

Snowmelt is 2 to 4 weeks earlier than normal this season. Most streams across the state seem to have reached their snowmelt peak between May 24 and May 28. Usually, streams with higher elevation headwaters peak around mid- to late June.

Most of the state received some moisture in late May, temporarily relieving very dry conditions. With the early loss of the below average snowpack, runoff will be very dependent on precipitation in June and the following months. If June precipitation follows the below average trend of previous months, serious water shortages will develop by late June and into July and August. Average or above average precipitation spaced throughout the summer will help alleviate some shortages. However, it appears that even with near average moisture in June, areas in southwest and throughout central Montana will still experience some shortages. If June precipitation is below average, all of the state will have shortages with severe problems in the southwest and central areas.

Report format to change next year

The format of the 1986 Water Supply Outlook Report is scheduled to change with the January 1 report.

The report will be 8½ X 11 inches in size. It will include a statewide summary but most of the data will be contained in 11 separate basin reports. These basin reports will include a narrative, reservoir storage, streamflow forecasts and a summary of snow and precipitation measurements. Snow survey and precipitation data for individual sites will not be included in these monthly reports but will be published in a fall summary.

To provide data from individual locations, a preliminary basic data report will be mailed shortly after the first of the month measurements are tabulated to those who request this data. Individuals or agencies with computer capability are encouraged to obtain this data directly from the SCS computer in Portland, Oregon.

Water Supply Outlook reports will be prepared monthly, January 1 through June 1. The May 15th Water Supply Outlook Report will be discontinued.

In the near future, purge cards will be mailed to all recipients of current Water Supply Outlook Reports and each will be able to request the needed reports.

Snowfall pH measurements to be published soon

We have just completed the fifth year of measuring the pH of surface snow at snow courses. A summary of all measurements obtained during the last five years will be published in the near future. If you would like to receive a copy of this summary, please send your request to:

USDA-SCS-SNOW SURVEYS
FEDERAL BUILDING-ROOM 443
10 EAST BABCOCK
BOZEMAN, MONTANA 59715

SNOW SURVEY DATA

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-80
MONTANA						
BADGER PASS BUTYL	5900	6/01/85	---	11.1	18.8	25.6
BANFIELD MOUNTAIN	5600	6/01/85	0	.0	.0	0.4
BANFIELD MTN BUTYL	5600	6/01/85	---	.0	.0	3.4
BARKER LAKES BUTYL	8250	6/01/85	---	1.6	10.9	11.3
BASIN CREEK METAL	7180	6/01/85	---	.0	3.8	6.0
BEAGLE SPGS METAL	8850	6/01/85	---	.0	.0	1.0
BEAR PAW SKI AREA	5200	5/29/85	0	.0	.0	.0
BIG CREEK	6750	6/05/85	44	24.3	41.9	44.7
BLACK BEAR BUTYL	7950	6/01/85	---	14.0	26.7	25.9
BLACK PINE	7100	5/30/85	7	.6	2.6	4.0
BLACK PINE BUTYL	7100	6/01/85	---	.3	.7	1.0
BLOODY DICK BUTYL	7550	6/01/85	---	.0	.8	1.0
BOULDER MTN BUTYL	7950	6/01/85	---	.0	10.3	15.0
BOX CANYON METAL	6700	6/01/85	---	.0	.0	.0
BRIDGER BOWL	7250	5/29/85	1	.2	23.6	21.8
BRIDGER BOWL BUTYL	7250	5/29/85	---	.0	21.4	17.9
CALVERT CREEK BUTYL	6430	6/01/85	---	.0	.0	.0
CARROT BASIN BUTYL	9000	6/01/85	---	7.6	28.7	27.9
CASHE CREEK METAL	7800	6/01/85	---	.0	1.8	1.9
CHICKEN CREEK	4060	5/30/85	0	.0	.0	.0
CLOVER MEADOW METAL	8800	6/01/85	---	.0	15.3	12.2
COLE CREEK	7850	5/30/85	0	.0	--	21.7
COLE CREEK BUTYL	7850	6/01/85	---	.0	16.7	13.8
COMBINATION	5600	5/30/85	0	.0	.0	.5
COMBINATION BUTYL	5600	6/01/85	---	.0	.0	.0
COPPER BOTTOM BUTYL	5200	6/01/85	---	.0	.0	.0
COPPER CAMP BUTYL	6950	6/01/85	---	.0	7.0	17.1
CRYSTAL LAKE METAL	6050	6/01/85	---	.0	.0	1.5
DALY CREEK METAL	5780	6/01/85	---	.0	.0	.0
DARKHORSE LK. METAL	8700	6/01/85	---	9.8	23.9	27.8
DEADMAN CREEK	6450	5/30/85	0	.0	.0	.5
DEADMAN CREEK BUTYL	6450	6/01/85	---	.0	.0	.8
DIVIDE BUTYL	7800	6/01/85	---	.0	3.4	2.1
DUPUYER CREEK BUTYL	5750	6/01/85	---	.0	.0	--
EMERY CREEK	4350	6/01/85	0	.0	.0	.2
EMERY CREEK BUTYL	4350	6/01/85	---	.0	.0	.0
FATTY CREEK	5500	6/03/85	4	1.8	.0	9.7
FISHER CREEK BUTYL	9100	6/01/85	---	17.0	28.9	34.6
FLATTOP MTN BUTYL	6300	6/01/85	---	39.0	31.2	41.6
FOURTH OF JULY	3450	5/31/85	0	.0	.0	.0
FRIDAY HILL	4620	5/31/85	0	.0	.0	.0
FROHNER MDWS BUTYL	6480	6/01/85	---	.0	.0	1.9
GARVER CREEK	4250	6/01/85	0	.0	.0	.0
GARVER CREEK BUTYL	4250	6/01/85	---	.0	.0	.0
GIBBONS PASS	7100	5/30/85	3	.5	13.8	10.2
GRAVE CREEK	4300	6/01/85	0	.0	.0	1.8
GRAVE CRK BUTYL	4300	6/01/85	---	.0	.0	.0
HAND CREEK BUTYL	5030	6/01/85	---	.0	.0	.0
HAWKINS LAKE	6450	6/01/85	7	4.0	23.6	21.5
HAWKINS LAKE BUTYL	6450	6/01/85	---	5.8	22.8	22.5
HEART LAKE TRAIL	4800	5/29/85	0	.0	.0	3.1
HERRIG JUNCTION	4850	5/30/85	0	.0	.6	2.6
HOODOO BASIN	6050	5/29/85	46	26.0	35.8	36.3
HOODOO BASIN BUTYL	6050	6/01/85	---	23.8	31.0	29.1
HOODOO CREEK	5900	5/29/85	50	28.6	31.6	35.6
KINGS HILL	7500	5/30/85	0	.0	8.4	10.4
KRAFT CREEK METAL	4750	6/01/85	---	.0	.0	.0
LAKEVIEW RDG. METAL	7400	6/01/85	---	.0	.0	.0
LEMHI RIDGE BUTYL	8100	6/01/85	---	.7	2.6	1.8
LICK CREEK	6860	5/29/85	0	.0	2.4	1.4
LICK CREEK BUTYL	6860	6/01/85	---	.0	.0	.5
LOWER TWIN METAL	7900	6/01/85	---	1.3	18.4	18.6
LUBRECHT FLUME	4680	5/31/85	0	.0	.0	--
LUBRECHT FLUME BUTYL	4680	6/01/85	---	.0	.0	.0
MANY GLACIER BUTYL	4900	6/01/85	---	.0	.0	.0
MAYNARD CREEK	6210	5/29/85	0	.0	.6	4.7
MAYNARD CREEK BUTYL	6210	5/29/85	---	.0	5.2	4.7
MONUMENT PEAK METAL	8850	6/01/85	---	3.4	15.6	23.9
MT LOCKHART BUTYL	6400	6/01/85	---	3.5	4.7	12.6
MULE CREEK METAL	8300	6/01/85	---	.9	9.8	12.3
NEVADA CREEK METAL	6480	6/01/85	---	.0	.0	5.8
NEWTON MOUNTAIN	5600	5/31/85	8	4.9	23.9	13.6
NEZ PERCE CAMP	5650	5/30/85	0	.0	--	--
NEZ PERCE CMP BUTYL	5650	6/01/85	---	.0	.0	.4
NEZ PERCE PASS	6570	5/30/85	0	.0	--	--
NOISY BASIN	6040	6/01/85	55	30.6	54.8	43.6
NOISY BASIN BUTYL	6040	6/01/85	---	21.3	48.4	30.0
NORTH FORK ELK CREEK	6250	5/31/85	0	.0	.0	2.5
N.FORK ELK CRK BUTYL	6250	6/01/85	---	.0	.0	1.1
NORTH FORK JOCKO	6330	5/31/85	13	7.0	29.0	29.5
N.E. ENTRANCE BUTYL	7350	6/01/85	---	.0	.0	.0
PETERSON MEADOWS	7200	5/31/85	0	.0	2.4	1.8
PETERSON MDW BUTYL	7200	5/31/85	---	.4	4.8	3.7
PICKFOOT CRK METAL	6650	6/01/85	---	.0	.0	.0
PIKE CREEK	5930	5/28/85	0	.0	3.6	--
PIKE CREEK BUTYL	5930	6/01/85	---	.6	.9	13.2
PLACER BASIN METAL	8830	6/01/85	---	.0	20.5	21.0
POORMAN CREEK	5100	6/01/85	0	.0	11.3	10.2
POORMAN CRK BUTYL	5100	6/01/85	---	.8	10.1	10.6
PORCUPINE BUTYL	6500	6/01/85	---	.0	.0	.2
RED TOP	5260	5/31/85	4	1.7	13.8	6.4
ROCKER PEAK	8000	5/28/85	0	.0	6.8	10.6
ROCKER PEAK BUTYL	8000	6/01/85	---	1.0	10.3	15.2
ROCKY BOY	4700	5/29/85	0	.0	.0	.6
ROCKY BOY BUTYL	4700	5/29/85	---	.0	.0	.3
SADDLE MTN BUTYL	7900	6/01/85	---	.8	17.1	20.1
SHOWER FALLS BUTYL	8100	6/01/85	---	3.6	29.2	28.9
SILVER RUN	6630	5/30/85	0	.0	--	1.0
SILVER RUN BUTYL	6630	6/01/85	---	.0	.0	.0
SMALPAHO SUMMIT	7250	5/31/85	9	1.5	14.3	15.8
SMALPAHO SUMMIT BTYL	7250	6/01/85	---	3.4	15.5	18.7
SPYGLASS TRAIL METAL	6200	6/01/85	---	1.4	16.1	20.6
S.FK. SHIELDS BUTYL	8100	6/01/85	---	.2	24.1	14.3
SPUR PARK	8100	5/30/85	7	3.0	16.2	18.2
SPUR PARK BUTYL	8100	6/01/85	---	4.4	13.8	17.3
STAHL PEAK	6030	6/01/85	28	17.1	35.8	33.0
STAHL PEAK BUTYL	6030	6/01/85	---	21.1	31.5	27.2
STRYKER BASIN	6180	5/30/85	8	3.9	24.3	19.5
SUCKER CREEK	3960	5/29/85	0	.0	.0	.1
TAYLOR PARK	4080	5/29/85	0	.0	.0	.2
TEPEE CREEK BUTYL	8000	6/01/85	---	5	5.0	5.7
TWELVEMILE BUTYL	5600	6/01/85	---	.0	.0	.7
TWIN LAKES BUTYL	6400	6/01/85	---	13.7	28.2	28.9
WALDRON BUTYL	5600	6/01/85	---	.0	.0	.2
WARM SPRINGS	7800	5/31/85	3	1.2	--	13.2
WARM SPRINGS BUTYL	7800	6/01/85	---	6.6	21.0	24.3
WEASEL DIVIDE	5450	6/01/85	18	11.0	18.6	19.7
WEST YELLOWSTONE	6700	5/31/85	0	.0	--	--
WEST YELL'ST BUTYL	6700	5/31/85	---	.0	.0	.0
WHISKEY CREEK BUTYL	6800	6/01/85	---	.0	.0	1.5
WHITE MILL BUTYL	8700	6/01/85	---	11.4	20.3	19.8
WOOD CREEK METAL	5960	6/01/85	---	.0	.0	.0

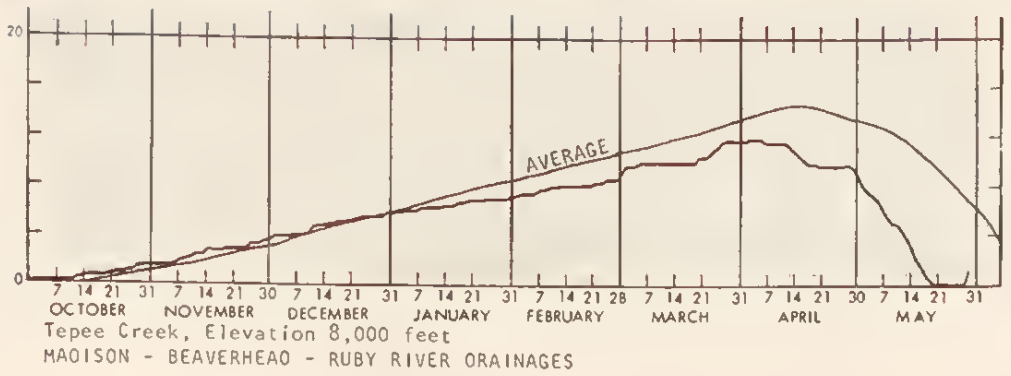
Unpublished data and corrections to previously published data

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-80
DECEMBER						
Emery Creek	4350	11/30/85	33	8.1	---	---
JANUARY						
Banfield Mountain	5600	1/09/85	47	14.7	5.2	11.1
Desert Mountain	5600	1/10/85	38	11.0	4.6	6.9
Emery Creek	4350	1/10/85	44	12.8	4.8	6.3
Garver Creek	4250	1/02/85	27	7.8	3.8	5.6
Grave Creek	4300	1/02/85	43	12.6	5.2	7.7
Hawkins Lake	6450	1/02/85	65	21.5	8.9	15.5
Many Glacier	4900	1/06/85	57	15.4	4.9	9.8
Noisy Basin	6040	1/10/85	88	30.9	18.0	17.8
Pike Creek	5930	12/26/84	64	16.8	6.6	---
Poorman Creek	5100	1/09/85	86	28.4	10.8	15.7
Rocky Boy	4700	1/02/85	15	3.4	1.5	1.9
Stahl Peak	6030	1/02/85	83	27.5	14.6	19.7
Weasel Divide	5450	1/02/85	76	25.0	9.9	16.9
MID-JANUARY						
Heart Lake Trail	4800	1/14/85	58	18.8	---	---
Hoodoo Basin	6050	1/14/85	103	38.4	21.2	---
Hoodoo Creek	5900	1/14/85	95	35.0	18.5	---
FEBRUARY						
Fourth of July	3450	2/05/85	31	8.6	3.3	6.9
Friday Hill	4620	2/05/85	51	17.2	7.4	17.8
Newton Mountain	5600	2/05/85	72	28.5	15.2	24.7
Red Top	5260	2/05/85	60	23.8	11.4	20.2
Spotted Bear Mtn.	7000	2/04/85	37	10.3	7.2	11.2
Upper Holland Lake	6200	2/05/85	66	23.7	19.6	24.4
MID-FEBRUARY						
Heart Lake Trail	4800	2/15/85	71	22.3	---	---
Hoodoo Basin	6050	2/15/85	121	48.4	29.2	---
Hoodoo Creek	5900	2/15/85	113	43.0	27.2	---
MARCH						
Box Canyon	6700	3/04/85	45	10.5	6.8	10.9
Branham Lakes	8850	3/01/85	79	22.0	25.6	25.7
Clover Meadow	8600	2/23/85	45	12.2	13.2	14.6
Copper Bottom	5200	3/05/85	51	13.8	5.4	11.0
Darkhorse Lake	8600	2/24/85	59	19.6	17.8	22.6
Divide	7800	2/23/85	30	6.0	9.6	9.9
Independence	7850	3/04/85	60	16.0	11.1	16.8
Middle Mill Creek	7850	3/01/85	52	13.0	14.9	14.5
Mineral Creek	4000	2/27/85	60	16.4	9.8	17.1
Monument Peak	8850	3/04/85	67	17.6	17.3	23.9
Notch	8500	2/23/85	39	9.2	15.6	13.6
Slag-A-Melt Lake	8750	2/24/85	60	18.5	17.5	22.3
Smuggler Mine	6960	3/01/85	37	8.5	9.0	8.9
Wood Creek	5960	3/08/85	45	11.7	3.0	11.5
MID-MARCH						
Hoodoo Basin	6050	3/15/85	112	48.2	37.6	---
Hoodoo Creek	5900	3/15/85	106	44.2	34.3	---
APRIL						
Big Creek	6750	4/08/85	101	43.9	42.0	47.2
MID-APRIL						
Hoodoo Basin	6050	4/13/85	111	53.1	43.3	---
Hoodoo Creek	5900	4/13/85	101	46.4	38.3	---
MAY						
Porcupine	6500	4/29/85	10	4.1	8.4	7.9
MID-MAY						
North Fork Jocko	6330	5/17/85	44	24.4	37.4	42.8

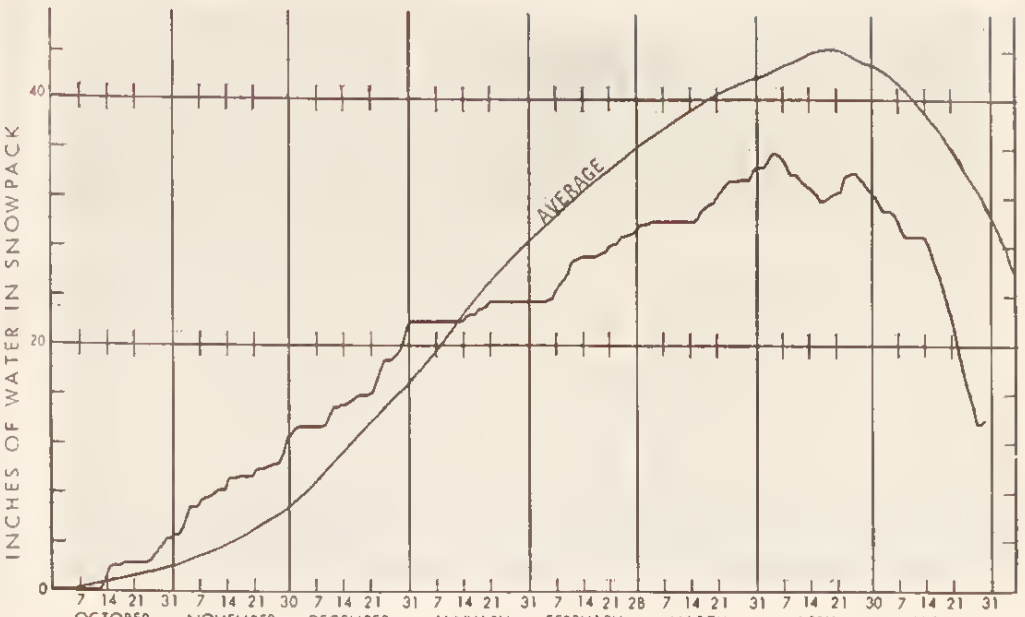
1935-1985

50 Years of Soil and Water Conservation

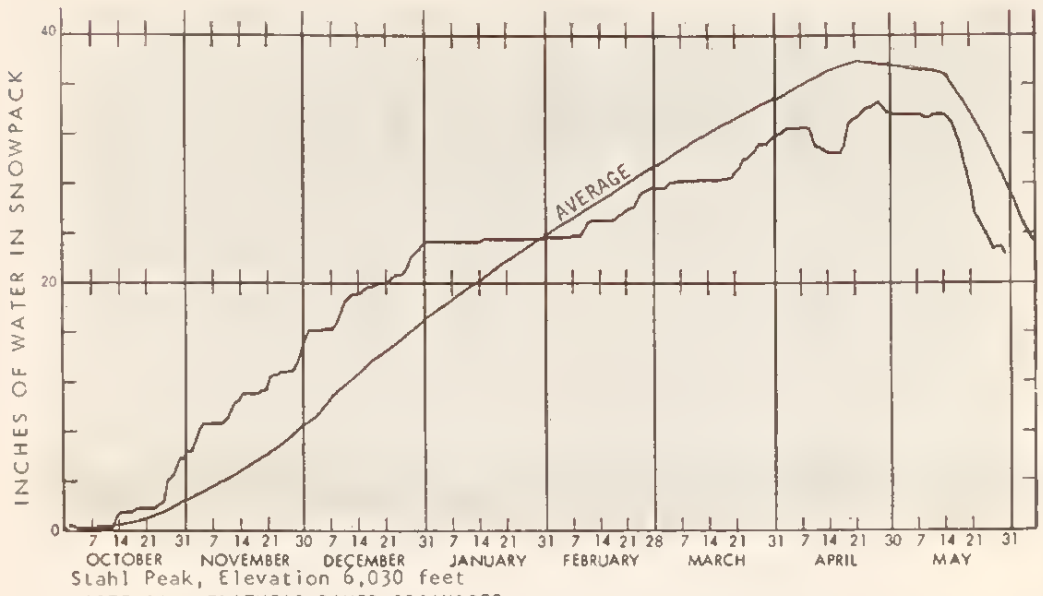
SNOW PILLOW DATA



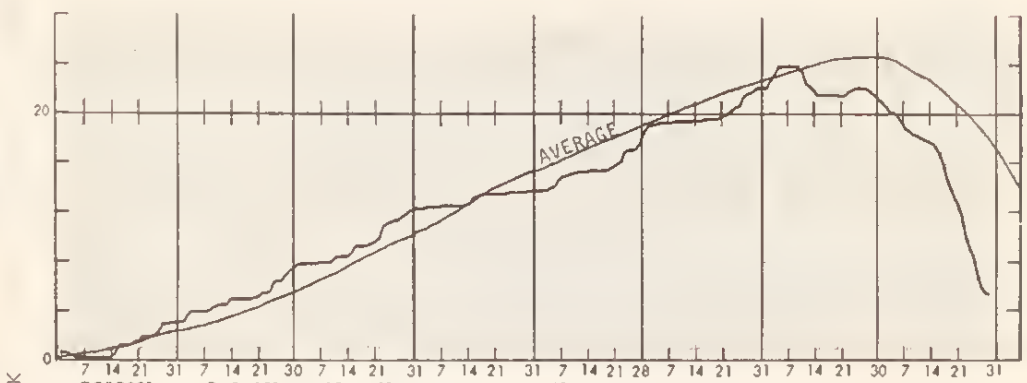
Tepee Creek, Elevation 8,000 feet
MADISON - BEAVERHEAD - RUBY RIVER DRAINAGES



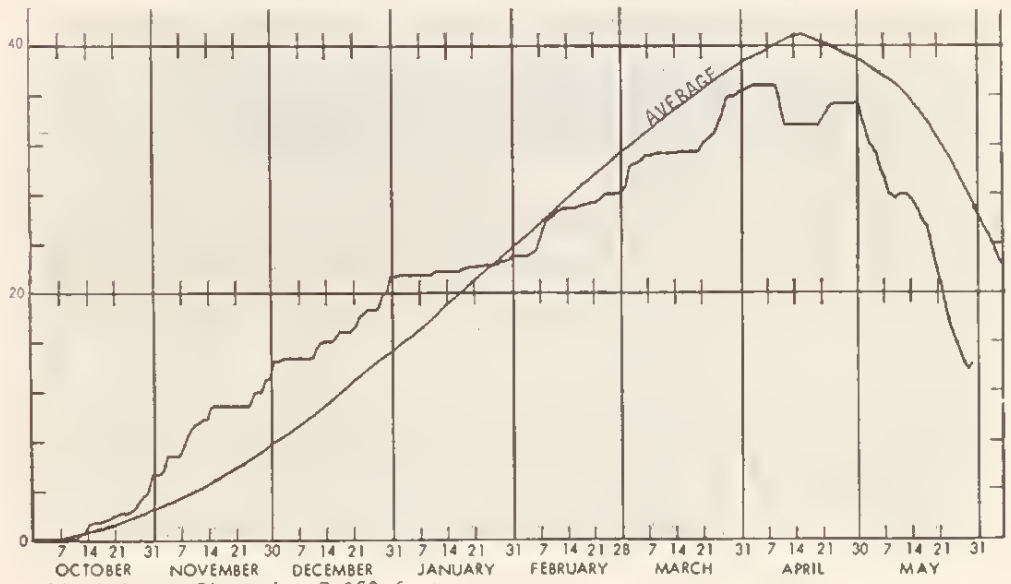
Twin Lakes, Elevation 6,510 feet
BITTERROOT RIVER DRAINAGE



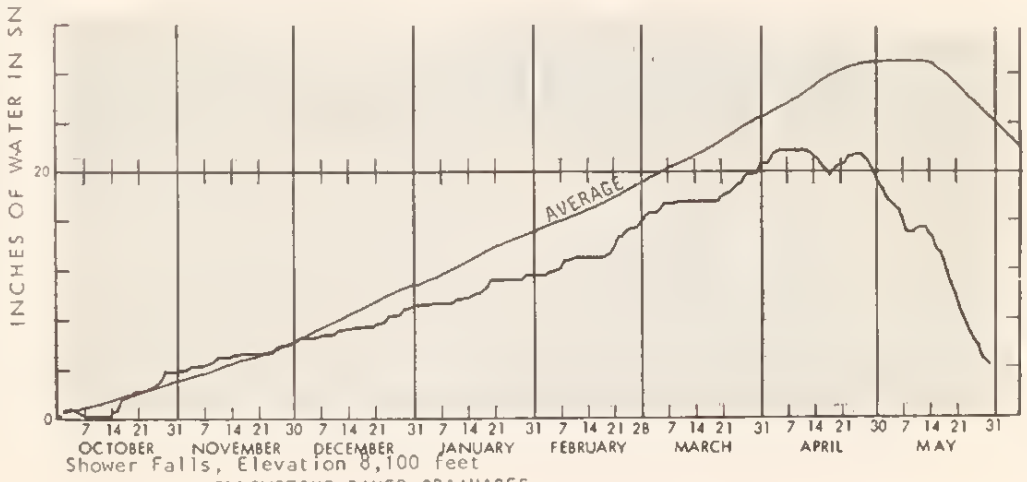
Stahl Peak, Elevation 6,030 feet
KOOTENAI - FLATHEAD RIVER DRAINAGES



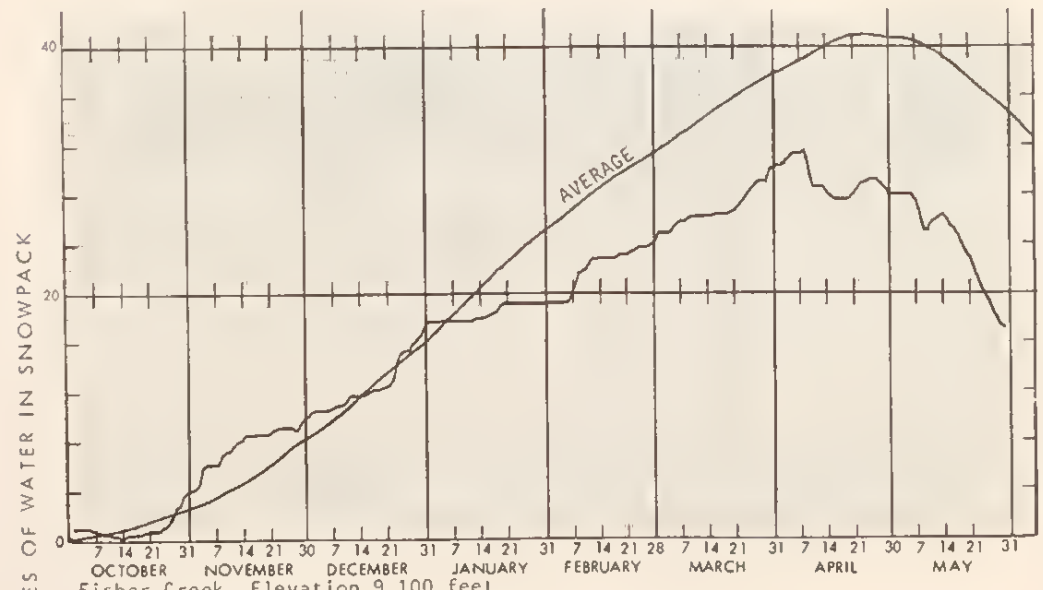
Spur Park, Elevation 8,100 feet
JUDITH RIVER DRAINAGE



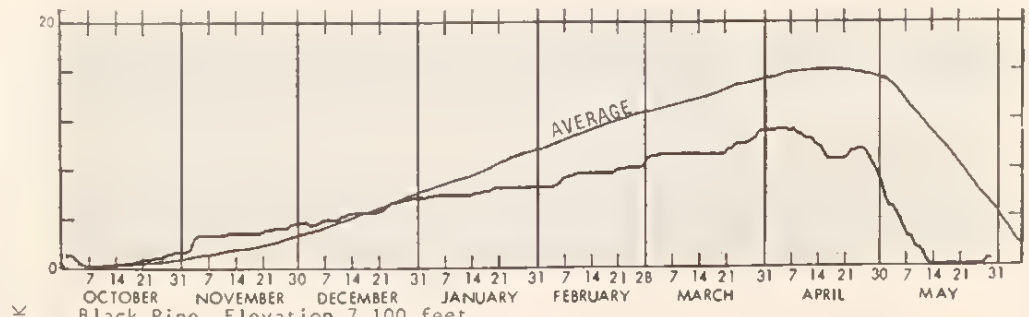
Black Bear, Elevation 7,950 feet
MADISON RIVER DRAINAGE



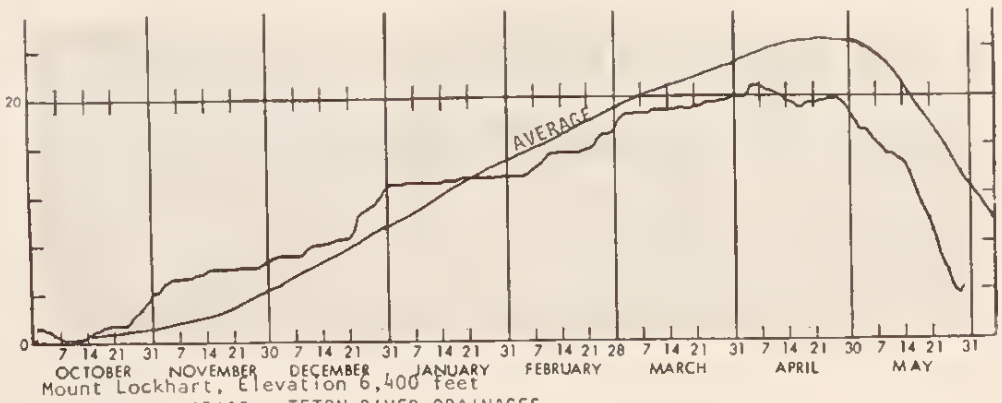
Shower Falls, Elevation 8,100 feet
GALLATIN - YELLOWSTONE RIVER DRAINAGES



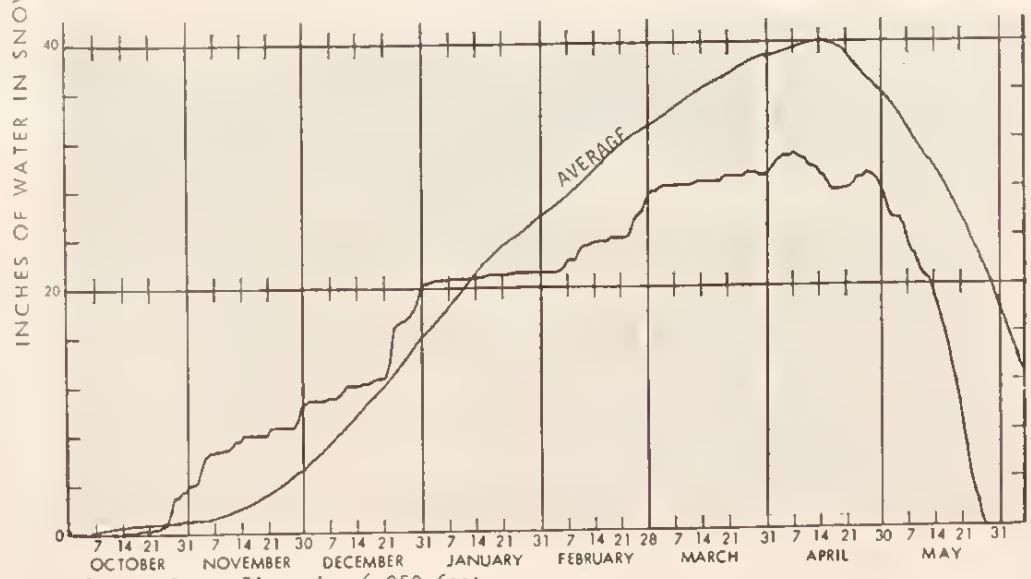
Fisher Creek, Elevation 9,100 feet
YELLOWSTONE - BOULDER - STILLWATER - CLARK'S FORK RIVER DRAINAGES



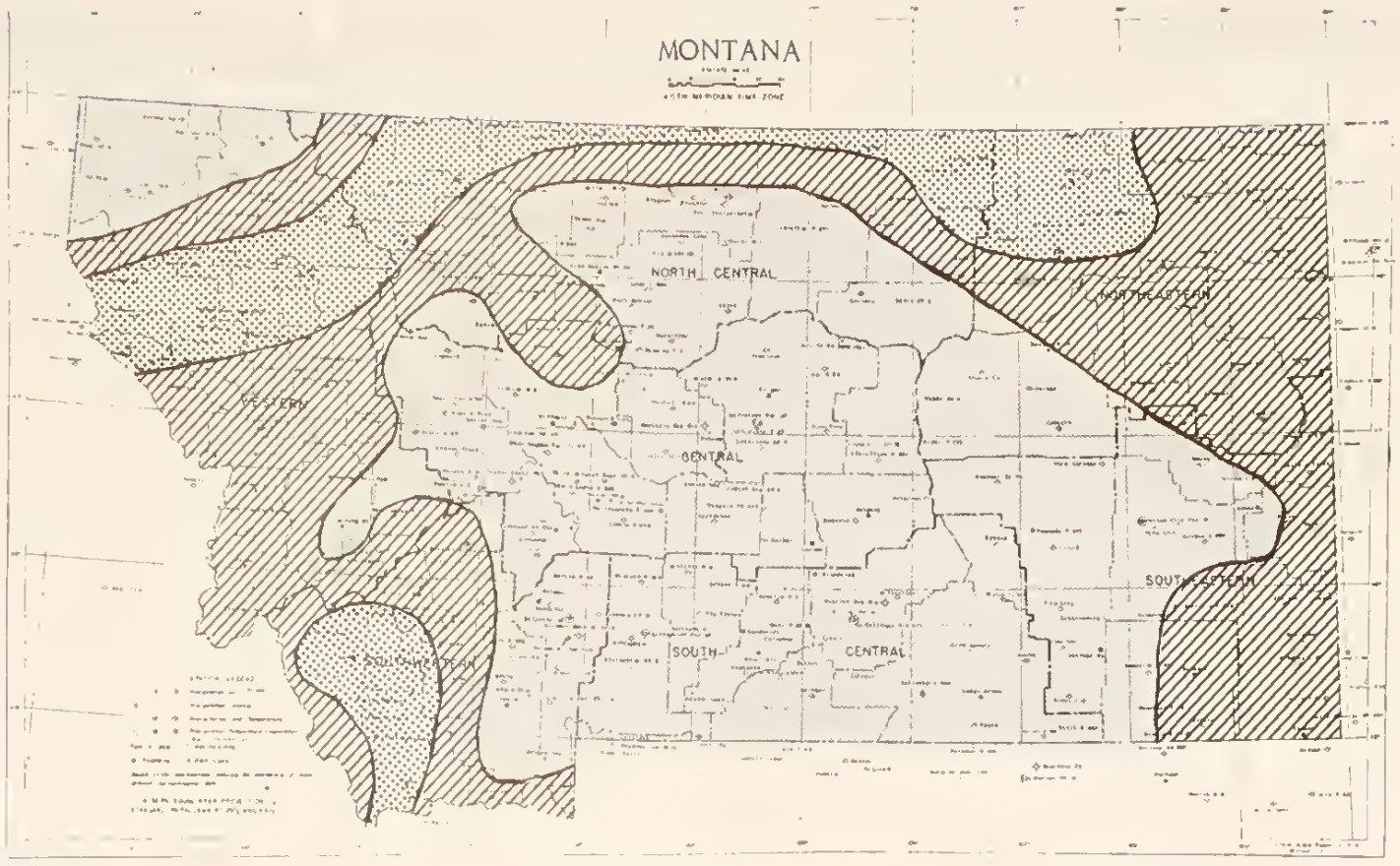
Black Pine, Elevation 7,100 feet
UPPER CLARK FORK RIVER DRAINAGE



Mount Lockhart, Elevation 6,400 feet
FLATHEAD - MARIAS - TETON RIVER DRAINAGES



Copper Camp, Elevation 6,950 feet
BLACKFOOT RIVER DRAINAGE



Over 120%

80 - 120%

Under 80%

VALLEY PRECIPITATION

MAY 1985

Source: NWS
Great Falls, MT

Mountain snowpacks depleted earlier than normal this year and plants have suffered because of the dry soils.

AGENCIES AND ORGANIZATIONS COOPERATING IN MONTANA SNOW SURVEYS

GOVERNMENT AGENCIES
- Canada
  - Department of the Environment
    - Atmospheric Environment Service
    - Water Management Service
  - British Columbia Ministry of Environment
    - Inventory and Engineering Branch, Hydrology Section
  - Alberta Environment
    - Technical Services Division
- Federal
  - Department of the Army - Corps of Engineers
  - Department of Agriculture - Forest Service
  - Department of Agriculture - Soil Conservation Service
  - Department of Commerce - National Environmental Satellite Service
  - Department of Commerce - National Weather Service
  - Department of Interior - Bureau of Indian Affairs
  - Department of Interior - Fish and Wildlife Service
  - Department of Interior - Geological Survey
  - Department of Interior - National Park Service
  - Department of Interior - Bureau of Reclamation
  - Department of Energy - Bonneville Power Administration

STATE AGENCIES
- Montana Conservation Districts
- Montana Department of Fish, Wildlife and Parks
- Montana Department of Natural Resources and Conservation
- Montana State University - Agricultural Experiment Station
- University of Montana - School of Forestry

PRIVATE ORGANIZATIONS
- The Anaconda Company
- Big Sky of Montana
- Butte Water Company
- Flathead Valley Community College
- Montana Power Company
- Pondera County Canal & Reservoir Company

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH May 31, 1985

BASIN OR STREAM	RESERVOIR	USABLE CAPACITY	USABLE STORAGE THIS YEAR	USABLE STORAGE LAST YEAR	USABLE STORAGE AVERAGE
	COLUMBIA				
Kootenai	Koocanusa	5,748.2	3,605.0	3,237.0	3,214.0
Flathead	Hungry Horse	3,451.0	3,016.0	2,549.0	2,616.0
	Flathead Lake	1,791.0	1,573.0	1,464.0	1,463.0
	Camas (4)	45.2	26.1	32.2	31.1
	Mission Valley (8)	100.3	49.8	81.1	66.5
Clark Fork	Georgetown Lake	31.0	26.5	29.3	26.2
	Lower Willow Creek	4.9	4.1	5.1	4.3
	Nevada Creek	12.6	10.1	12.7	11.5
	Noxon Rapids	334.6	326.4	291.1	258.3
Bitterroot	Painted Rocks	31.7	---	---	30.1
	Como	34.9	34.2	33.0	27.1
	MISSOURI				
Beaverhead	Lima	84.0	72.8	82.6	64.6
	Clark Canyon	257.2	159.0	250.7	163.7
Ruby	Ruby	38.8	37.7	40.9	37.8
Madison	Hebgen Lake	377.5	357.9	337.3	291.7
	Ennis Lake	41.0	33.5	36.9	35.8
Gallatin	Middle Creek	8.0	7.6	6.1	6.7
Missouri	Canyon Ferry	2,043.0	1,683.0	1,795.0	1,651.0
	Hauser & Helena	61.9	63.0	62.5	60.0
	Helena Valley	9.2	5.2	8.3	7.6
	Lake Helena	10.4	10.9	10.7	9.8
	Holter Lake	81.9	79.6	79.6	77.3
	Fort Peck Lake	18,910.0	15,330.0	16,390.0	15,750.0
Smith	Smith River	10.6	11.0	11.6	10.6
	Newlan Creek	12.4	9.8	10.7	9.5
Musselshell	Bair	7.0	2.2	4.9	6.6
	Martinsdale	23.1	7.6	23.3	17.2
	Deadman's Basin	72.2	37.0	64.8	57.2
Sun	Gibson	99.1	85.5	96.2	90.1
	Willow Creek	32.2	22.9	30.1	28.2
	Pishkun	32.0	31.7	28.5	31.7
Marias	Lower Two Medicine	11.9	---	---	12.5
	Four Horns	19.2	---	---	13.1
	Swift	30.0	17.2	23.6	24.9
	Lake Frances	111.9	28.6	46.3	88.3
	Elwell (Tiber)	1,347.0	818.4	735.0	648.4
Milk	Beaver Creek	3.5	1.0	3.1	3.0
	Fresno	127.2	29.4	14.8	96.7
	Nelson	66.8	18.2	20.2	44.1
	HUDSON BAY				
St. Mary's	Lake Sherburne	64.3	24.8	14.5	31.9
	YELLOWSTONE				
Stillwater	Mystic Lake	21.0	3.9	2.7	5.6
Clark's Fork	Cooney	27.4	19.9	22.3	18.8
Tongue	Tongue River	68.0	45.2	43.2	48.8
Bighorn	Bigborn Lake	1,356.0	891.6	946.1	702.7

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